No.

9600194

Aobartis Seeds, Inc.

MICCOLS, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE basic seed of the variety in a public repository as provided by LAW, the right to exclude others FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN ucing a hybrid or different variety therefrom, to the extent provided by the PLANT ${
m Variety}$ CTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

> SOYBEAN 'S18-11'

In Testimony Thereof, I have hereunto set my hand and caused the seal of the Hant Barieta Protection State to be affixed at the City of Washington, D.C. this thirty-first day of January, in the year of

Commissioner Plant Variety Protection Office Agricultural Marketing Servic

Agriculture

REPRODUCE LOCALLY. Include form number and date on a U.S. DEPARTMENT OF AGRICULTURE		The following statements are me	FORM APPROVED - OMB NO. 0581- ade in accordance with the Privacy A
AGRICULTURAL MARKETING SERVICE SCIENCE DIVISION - PLANT VARIETY PROTECTION OF	FICE	1974 (5 U.S.C. 552a).	
APPLICATION FOR PLANT VARIETY PROTECTION (Instructions and information collection burden statem)	Application is required in order certificate is to be issued (7 U.S. until certificate is issued (7 U.S. (to determine if a plant variety protect. C. 2421). Information is held confidence. C. 2426).	
. NAME OF APPLICANT(S) (as it is to appear on the Certificate)	ent on reverse,	2. TEMPORARY DESIGNATION OR	3. VARIETY NAME
Nonthana King Co		EXPERIMENTAL NUMBER	
Northrup King Co.			S 18-11
A. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Cour	ntry)	5. TELEPHONE (include area code)	FOR OFFICIAL USE ONLY
P. O. Box 949		319-653-6645	PVPO NUMBER O / O O 1 O A
Washington, Iowa 52353-0949			9600194
	•	6. FAX (include area code)	DATE
Attention: Dr. John C. Thorne		319-653-4609	
GENUS AND SPECIES NAME	· ·		G C
CENTRO AND SECULO NAME	8. FAMILY NAME (Bote)	ucalj · ·	FILING AND EXAMINATION FEE.
Glycine max	Leguminosae		E - 430 -
CROP KIND NAME (Common name)	. <u>I , , , , , , , , , , , , , , , , , , </u>		S DATE
Soybean	•		R // (4.05 - 17, 79.76
IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZA Northrup King Co.	TION (corporation, partners	nip, association, etc.) (Common name)	C CHTHECATION FEE
IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	E DATE
Delaware		1976	0 000
NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SER	VE IN THE ARRIVATION	AND DESCRIPTION AND DESCRIPTION OF THE PROPERTY OF THE PROPERT	14. TELEPHONE (include area code)
Northrup King Co. P. O. Box 949 Washington, Iowa 52353-0949			15. FAX (include area code)
CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow is	nstructions on reverse)		
a. 🗵 Exhibit A. Origin and Breeding History of the Variety			
b. X Exhibit B. Statement of Distinctness			
c. 🗵 Exhibit C. Objective Description of the Variety d. Exhibit D. Additional Description of the Variety			
e. X Exhibit E. Statement of the Basis of the Applicant's Ownership			
f. Noucher Sample (2,500 viable untreated seeds or, for tuber propagated	d varieties verification that t	issue culture will be deposited and maintain	ed in a nublic renasitorul
g. 🏿 Filing and Examination Fee (\$2,450), made payable to "Tressurer of the			ou is a public sepository
DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY	VARIETY NAME ONLY, AS		on 83(a) of the Plant Variety Protection Act)
DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED A	AS TO NUMBER OF 19	IF "YES" TO ITEM 18, WHICH CLASSES	OF PRODUCTION BEYOND BREEDER SEED
☐ YES 🍱 NO		☐ FOUNDATION ☐ REGISTER	ED CERTIFIED
HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN REL	EASED, USED, OFFERED FO	R SALE, OR MARKETED IN THE U.S. OR (OTHER COUNTRIES?
YES (If "yes," give names of countries and dates)	NO		
The applicantis) declare that a viable sample of basic seed of the variety will be	furnished with application a	nd will be replenished upon request in acco	rdance with such regulations as may be
applicable, or for a tuber propagated variety a tissue culture will be deposited in	a public repository and ma	ntained for the duration of the certificate.	
The undersigned applicant(s) is(sre) the owner(s) of this sexually reproduced or Section 41, and is entitled to protection under the provisions of Section 42 of th	tuber propagated plant varie	ty, and believe(s) that the variety is new, d	istinct, uniform, and stable as required in
Applicant(s) is(age) informed that false representation herein can jeopardize prote			
HATURE OF APPLICANT (Opper/sill // //		RE OF APPLICANY (Owner(s))	
La Colhome			
E (flease print or type)	NAME (Sample Same Same Same Same Same Same Same Sam	
7. 1.1. 0. Th		and the second	
Dr. John C. Thorne			
Dr. John C. Thorne ACITY OR TITLE DATE	CAPAÉIT	OR TITLE	DATE

EXHIBIT A

Origin and Breeding History of the Variety

The soybean variety 'S 18-11' is derived from a single F4 plant from the cross 'S 31-33' x 'S 19-90'. The cross was made in the winter of 1987-88 at the Northrup King Research Center at Waimea, Kauaii, HI. The F1 was grown at the Northrup King Research Center at Washington, IA, in the summer of 1988; the F2 and F3 at Waimea in the winter of 1988-89; and the F4 at Washington in the summer of 1989. The F1 was bulk harvested. The F2 and F3 were advanced by harvesting 2-4 seeds per plant and planting 600 seed from the resulting bulk. In the fall of 1989, individual F4 plants were harvested and threshed. The progeny from each of these plants were planted in a plant progeny row at Washington in 1990. One of these, numbered W008643, was selected based on yield and agronomic characteristics for further testing. This line was subsequently tested under the temporary designation X9518 and named S 18-11. It has been tested at several northern cornbelt locations in the U.S. and in Ontario from 1992 through 1995 and found to yield well compared to other late Group 1 varieties. Descriptive characteristics including purple flowers, tawny pubescence, tan pods, and black hilum (may contain up to 2% other hilum) have been identified and confirmed. S 18-11 has been tested in the field for iron deficiency chlorosis and found to give an intermediate reaction. It has been tested for reaction to Races 1, 3, 4, 7, and 17 of Phytophthora sojae using hypocotyl inoculation of greenhouse grown plants and found to be susceptible. It has been tested in the greenhouse at the Northrup King Research Center at Bay, AR, for soybean cyst nematode, Races 3 and 14, and found to be resistant.

In the winter of 1992-93, 200 seeds of S 18-11 were planted at Waimea. The increase was rogued for flower and pubescence color and 100 single plants were harvested and threshed individually. The progeny from these plants were planted at Washington in the summer of 1993. This increase was carefully rogued at flowering and maturity. Uniform rows which conformed to the variety description were bulked to produce Pedigree Seed. This seed was planted near Washington, IA in 1994 to produce Breeder Seed. The increase block was rogued carefully during flowering and at maturity and found to be uniform.

Foundation Seed of S 18-11 was produced in 1995 from the 1994 Breeder Seed. The Iowa Crop Improvement Association inspected the fields and found them to meet the standards for Foundation Seed.

S 18-11 is stable and uniform within a purity level of 99%. Over four years of testing and three cycles of seed increase, we have observed no variants. Any off-type plants removed from increase fields were assumed to have arisen from admixture or outcrossing. Varietal purity will be maintained using progeny rows as described previously as needed for the life of the variety.

EXHIBIT B

Novelty Statement for the Variety

S 18-11 is most similar to S 19-90. It can be differentiated from S 19-90 on the basis of resistance to Races 1, 3, and 7 of Phytophthora sojae. S 19-90 is resistant to these races; S 18-11 is susceptible. S 18-11 can be further differentiated from S 19-90 on the basis of hilum color. Seeds of S 18-11 have black hila; seeds of S 19-90 have brown hila.

EXHIBIT C (Soybean)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

SUTBE.	AIV (Glycine max L.)		•
NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	N VARIETY NAME	
Northrup King Co.	X9518 (W008643)	\$ 18-11	
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Coo	le)	FOR OFFIC	IAL USE ONLY
P. O. Box 949		PVPO NUMBER	
Washington, Iowa 52353-0949		96	00194
Choose the appropriate response which characterizes the va in your answer is fewer than the number of boxes provided	riety in the features describ , place a zero in the first bo	ed below. When the nun x when number is 9 or le	aber of significant digits ss (e.g., 0 9).
1. SEED SHAPE: 2 1 = Spherical (L/W, L/T, and T/W ratios = < 1.2) 3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)	T = Spherical Flatter	ned (L/W ratio > 1.2; L/T ra ed (L/T ratio > 1.2; T/W)	
2, SEED COAT COLOR: (Mature Seed)			
2 1 = Yellow 2 = Green 3 = Brown	4 = Black 5 = Ot	her (Specify)	
3. SEED COAT LUSTER: (Mature Hand Shelled Seed)			
1 = Duil ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebs	oy'; 'Gasoy 17')		
4, SEED SIZE: (Mature Seed)			
2 1 Grams per 100 seeds			
5. HILUM COLOR: (Mature Seed)			
6 1 = Buff 2 = Yellow 3 = Brown (May contain up to 2% other hilum color)	4 = Gray 5 = Imperfec	: Black 6 = Black	7 = Other (Specify)
6. COTYLEDON COLOR: (Mature Seed)			
1 1 = Yellow 2 = Green		·	
7. SEED PROTEIN PEROXIDASE ACTIVITY:			
1 1 = Low 2 = High			
8. SEED PROTEIN ELECTROPHORETIC BAND:			
1 = Type A (SP1 ^a) 2 = Type B (SP1 ^b)			
9. HYPOCOTYL COLOR:			
1 = Green only ('Evans'; 'Davis') 2 = Green wi 3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71' 4 = Dark Purple extending to unifoliate leaves ('Hodgson'		ons ('Woodworth'; 'Tracy')	
10. LEAFLET SHAPE:			
1 = Lanceolate 2 = Oval 3 = Ovate	4 = Other (Specify)		

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		_
11. LEAFLET SIZE:		
1 = Small ('Amsoy 71'; 'A5312') 2 3 = Large ('Crawford'; 'Tracy')	2 = Medium ('Corsoy 79'; 'Gasoy 17')	
	USDA-AMS-PVPD	
12. LEAF COLOR:	THE STATE OF THE S	
1 = Light Green ('Weber'; 'York') 3 = Dark Green ('Gnome'; 'Tracy')	2 = Medium Green ('Corsoy 79'; 'Braxton') '96 MAR 19 AIG 107	
13. FLOWER COLOR:		
2 1 = White 2 = Purple	3 = White with purple throat	
14. POD COLOR:		-
1 1 = Tan 2 = Brown	3 = Black	
15. PLANT PUBESCENCE COLOR:		
2 1 = Gray 2 = Brown (Tawny)		
16. PLANT TYPES:		
1 = Slender ('Essex'; 'Amsoy 71') 3 = Bushy ('Gnome'; 'Govan')	2 = Intermediate ('Amcor'; 'Braxton')	
17. PLANT HABIT:		
1 = Determinate ('Gnome'; 'Braxton') 3 = Indeterminate ('Nebsoy'; 'Improved Pelic	2 = Semi-Determinate ('Will') ican')	
18. MATURITY GROUP:		******
1 = 000 2 = 00 3 = 0 9 = VI 10 = VII 11 = VIII	4=I 5=II 6=III 7=IV 8=V 12=IX 13=X	٠
19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Su	usceptible: 2 = Resistant)	
BACTERIAL DISEASES:		
0 Bacterial Pustule (Xanthomonas phaseoli var.	. sojensis)	
Bacterial Blight (Pseudomonas glycinea)		
0 Wildfire (Pseudomonas tabaci)		:
FUNGAL DISEASES:	360010	
1 Brown Spot (Septoria glycines)		
Frogeye Leaf Spot (Cercospora sojina)		
0 Race 1 0 Race 2 0 Race	e 3 0 Race 4 0 Race 5 Other (Specify)	
0 Target Spot (Corynespora cassiicola)		
Downy Mildew (Peronospora trifoliorum var. I	manshurica)	
0 Powdery Mildew (Microsphaera diffusa)		
Brown Stem Rot (Cephalosporium gregatum)	Moderately Resistant	
Stem Canker (Diaporthe phaseolorum var. caul	ılivora)	

19. DISEA	SE REACTION	: (Enter 0 = Not Tested; 1 = S	usceptible; 2 = l	Resistant) (Co	ntinued)		4			
FUN	GAL DISEASE	S: (Continued)				•	1			
	Pod and Sten	n Blight <i>(Diaporthe phaseolorur</i>	m var; sojae)							
1	Purple Seed 5	Stain (Cercospora kikuchii)								
0	Rhizoctonia	Root Rot (Rhizoctonia solani)								
	Phytophthora	Rot (Phytophthora megaspern	na var. sojae)	•						
1	Race 1	1 Race 2 1 Race	ce 3 1	Race 4	0 Race 5	0	Race 6	1	Race 7	
0	Race 8	0 Race 9 Oth	ner (Specify)				·			
VIRA	AL DISEASES:					-				
0	Bud Blight (T	obacco Ringspot Virus)								
0	Yellow Mosai	c (Bean Yellow Mosaic Virus)	·	•		•			•	
0	Cowpea Mosa	ic (Cowpea Chlorotic Virus)					•		•	
0	Pod Mottle (E	lean Pod Mottle Virus)								
0	Seed Mottle (Soybean Mosaic Virus)								
NEMA	ATODE DISEA	SES:								
	Soybean Cyst	Nematode (Heterodera glycine	·s)							
0	Race 1	0 Race 2 2 Rac	e 3 2	Race 4	Other /	Specify)				
0	Lance Nemate	ode (Hoplolaimus Colombus)							•	
0	Southern Roo	t Knot Nematode (Meloidogyn	e incognita)							
0	Northern Roo	t Knot Nematode <i>(Meloidogyn</i>	e Hapia)		•		•			• .
	Peanut Root I	Knot Nematode (Meloidogyne a	renaria)							
	Reniform Nen	natode (Rotylenchulus reniforn	nis)							
	OTHER DISE	ASE NOT ON FORM (Specify)):							
	LOGICAL RES	SPONSES: (Enter 0 = Not Test	ted; 1 = Suscept	ible; 2 = Resis	tant)					
	Iron Chlorosis	on Calcareous Soil Inte	ermediate							
	Other (Specify)				· · · · · · · · · · · · · · · · · · ·				
I. INSECT	REACTION:	Enter 0 = Not Tested; 1 = Susc	ceptible; 2 = Res	sistant)						
	Mexican Bean	Beetle (Epilachna varivestis)		• •			•			•
	Potato Leaf He	opper (Empoasca fabae)								
	Other (Specify	J <u> </u>		· · · · · ·						
. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.										
CHAR	ACTER	NAME OF VARIE	TY	CHAR	ACTER		NAME O	F VARIE	TY	
Plant Sha	pe	A2012		Seed Coa	t Luster	S 19-9	90			
Leaf Shap		S 20-91	·	Seed Size		S 19~9	90			·
Leaf Colo		\$ 20-91		Seed Shar		S 19-9	90	.		
Leaf Size		S 19-90		Seedling I	Pigmentation	Bell				:

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23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100	NO. SEEDS/
N	MATURITY			CM Width	CM Length	% Protein	% Oil	SEEDS	POD
Submitted	125	3.3	74	6.1	11.1	42.1	20.8	USDA-AMS	PVP0
S 19-90 Name of Similar Variety	125	1.9	76	5.8	10.7	40.2	21.1	96 ₂₀ MAR 19	ATO :07

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

- 1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
- 2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
- 3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
- 4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE	The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.				
EXHIBIT E STATEMENT OF THE BASIS OF OWNERSHIP	Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).				
1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME			
Novartis Seeds, Inc.		S18-11			
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)	5. TELEPHONE (include area code)	6. FAX (include area code)			
P.O. Box 959	612-593-7333	612-593-6501			
Minneapolis, MN 55440	7. PVPO NUMBER				
	9600194	•			
8. Does the applicant own all rights to the variety? Mark an "X" in approp	riate block. If no, please explain.	YES NO			
		-			
	en e				
 Is the applicant (individual or company) a U.S. national or U.S. based of If no, give name of country 	· · · · · · · · · · · · · · · · · · ·	X YES NO			
10. Is the applicant the original owner? A YES a If original rights to variety were owned by individual(s), is (are) the original rights to variety were owned by individual(s).	NO If no, please answer one of the participal owner(s) a U.S. national(s)?	following: talantist of the second or exercise so the transfer of the transfer of the second			
	野野 医牙髓 医乳头 化硫酸钾 医阿特勒氏 经联络收益 经工程设施	1948 filosofiki wilasan manazari garenga ya			
b. If original rights to variety were owned by a company(ies), is(are) the	NO If no, give name of country e original owner(s) a U.S. based compan	y?			
	NO If no, give name of country				
11. Additional explanation on ownership (if needed, use reverse for extra	space):				
		·			
	-हान्सः <u>भू</u> ण -	Σ.			
PLEASE NOTE:					
Plant variety protection can be afforded only to owners (not licensees) who meet	one of the following criteria:				
1. If the rights to the variety are owned by the original breeder that nerson must		ber country, or national of a country			

- 1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
- 2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
- 3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0.581-0.055. The time required to compete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

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